Application No.10/659,062
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REMARKS

In the most recent Office Action, claims 1-19 were examined. Claims 1-19 are rejected.

In response, claims 1-19 remain pending. No new matter is added.

Applicant thanks the Examiner for the thorough search and consideration of the present invention and responds to the comments in the Office Action as follows.

Claim Rejections 35 U.S.C. §103

The Office Action states that claims 1-6 and 8-18 are rejected under 35 U.S.C. §103(a) as being unpatentable over Carey et al. (U.S. Patent No. 6,274,924) in view of Yamaguchi (U.S. Patent No. 6,392,294). In particular, the Office Action states that while Carey et al. does not disclose a gold wire or a light-emitting diode with a first through hole corresponding to a location of a plastic lens attached through the first through hole, the same is taught by Yamaguchi in an obvious combination. The rejection is respectfully traversed.

The disclosure by Carey et al. appears to show a LED package composed of a pre-constructed lead frame and a thermally conductive slug. The slug is thermally coupled to the LED die, which is electrically connected to electrical conductors in the lead frame. Otherwise, the slug and the lead frame have no substantial relationship. That is, the slug is certainly not a metal substrate with a distribution circuit formed on its surface, as is recited in claim 1 of the present invention. The Office Action states that Carey et al. disclose a distribution circuit formed on the surface of a metal substrate, citing column 2, lines

3-5 of the disclosure by Carey et al. However, a review of the cited portions by Carey et al. reveals that there is no teaching or suggestion for forming a distribution circuit on the surface of the slug disclosed by Carey et al. Accordingly, the Office Action appears to read into the cited prior art reference by Carey et al. that which it does not, in fact, contain.

The disclosure by Carey et al. also appears to show a wire connecting the electrical conductors of the lead frame with the LED die. However, the present invention calls for a gold wire connecting the distribution circuit with the LED chip, where the distribution circuit is formed on the surface of a metal substrate. Accordingly, the disclosure by Carey et al. fails to teach or suggest the element of a gold wire connecting a distribution circuit with an LED chip as defined in claim 1.

The Office Action also states that Carey et al. do not disclosure the use of a gold wire for connecting the distribution circuit with an LED chip, but that the same is taught by Yamaguchi in an obvious combination. Applicant submits that the disclosure by Yamaguchi does not cure any of the deficiencies noted above with respect to the disclosure of Carey et al. regarding the subject matter recited in claim 1. That is, Yamaguchi does not reach or suggest a distribution circuit on a surface of a metal-substrate, and is similarly deficient regarding the recitation of the present invention in claim 1 as is Carey et al. Accordingly, notwithstanding the combination of disclosures by Carey et al. and Yamaguchi, or the modification of one with the other, a number of elements recited in claim 1 are still not taught or suggested, leaving one or ordinary skill at a loss as to how to arrive at the present invention recited in claim 1.

In addition, claim 1 of the present invention recites a plastic lens attached over a surface of the metal substrate to cover the gold wire. Neither of the disclosures by Carey et al. or Yamaguchi disclose a lens that covers a gold wire that connects a distribution circuit with the LED chip. Indeed, the disclosure by Yamaguchi appears to indicate a resin cover that should be molded around the gold wire, which is substantially opposite to the teaching of the present invention recited in claim 1, which calls for the lens to cover the gold wire. As described in the specification of the present invention, the lens is provided with a recess to avoid interference between the lens and the LED chip and gold wires (page 5, lines 5-8). Accordingly, Applicant respectfully submits that disclosures by Carey et al. and Yamaguchi do not teach or suggest all of the claim limitations recited in claim 1, either alone or in combination.

Furthermore, Applicant submits that it would not have been obvious to one of ordinary skill in the art to modify the LED of Carey et al. to include a gold wire based on the disclosure by Yamaguchi since Yamaguchi calls for a molded resin cover encapsulating the gold wire and fails to discuss use of a lens with a LED connected to a distribution circuit with a gold wire. For all the above reasons, Applicant respectfully submits that claim 1 is allowable over the disclosures by Carey et al. and Yamaguchi either alone or in combination. Applicant thus respectfully requests that the rejection of claim 1 under 35 U.S.C. §103(a) over Carey et al. in view of Yamaguchi be reconsidered and withdrawn.

Claims 2-6 and 8-18 ultimately depend upon and further limit claim 1 and should be allowable for all the same reasons that

claim 1 is allowable, and also because of the different limitations recited in each dependent claim. Applicant therefore, respectfully requests that the rejection of claims 2-6 and 8-18 under 35 U.S.C. §103(a) over Carey et al. in view of Yamaguchi be reconsidered and withdrawn.

Applicant also notes that the Office Action states that Yamaguchi discloses a plastic lens attached through a first through hole in a metal substrate. Applicants note that the disclosure by Yamaguchi is void of any discussion of a plastic lens and instead apparently refers to a resin cover, which appears to be attached to a specifically non-metal substrate. Accordingly, the disclosure by Yamaguchi fails to teach or suggest a number of elements recited in claim 2 of the present invention, for example, and actually appears to teach away from the present invention, even considering the combination or modification with Carey et al.

The Office Action states that claims 7 and 19 are rejected 35 U.S.C. §103(a) as being unpatentable over Carey et al. and Yamaguchi and further in view of Furuyama (US Patent No. 6,516,104). In particular, the Office Action states that while Carey et al. does not disclose a through hole corresponding to a space formed in the back of the plastic lens, with silicone in the space, the same is taught by Furuyama in an obvious combination. The rejection is respectfully traversed.

Claims 7 and 19 of the present invention ultimately depend upon claim 1, which, as discussed above, is believed to patentably distinguish over the cited prior art references of Carey et al. and Yamaguchi. The disclosure by Furuyama does not cure the deficiencies noted above with respect to the cited prior art

references applied to claim 1, and claims 7 and 19 are believed to be allowable as being dependent upon an allowable base claim.

Moreover, the disclosure by Furuyama appears to show a spherical lens positioned near a through hole of a substrate. Furuyama does not disclose:

> a space formed on a rear of the plastic lens between the plastic lens and the metal substrate to contain the LED chip.

Instead, the spherical lens is unchanged with respect to providing a space that can be filled with silicone through a through hole. Applicant therefore respectfully submits that the cited prior art references by Carey et al., Yamaguchi, and Furuyama fail to teach or suggest all the claim limitations recited in claims 7, and 19 either alone or in combination. In addition, because the spherical lens of Furuyama is not modified with a space, as is explicitly called for in claims 7 and 19, it would not have been obvious to one of ordinary skill in the art to combine the disclosure of Furuyama, or modify its teachings with those of the disclosures of Carey et al. and Yamaguchi to arrive at the present invention recited in claims 7 and 19. Applicant therefore respectfully requests that the rejection of claims 7 and 19 under 35 U.S.C. §103(a) over Carey et al. and Yamaguchi in view of Furuyama be reconsidered and withdrawn.

Conclusion

In view of the above discussion, Applicant respectfully believes that the claims in the present application are in condition for allowance, and earnestly solicits notice to that

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effect. The Examiner is encouraged to telephone the undersigned attorney to discuss any matter that would expedite allowance of the present application.

Respectfully submitted,

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